

ABSTRACT OF THE INVENTION

A differential sensing content addressable memory cell without any word lines connected to the cells in the same row comprises a first bit line for supplying a first bit. A first storage element has a first phase change resistor for storing a first stored bit, which is connected in series with a first diode. The first storage element is connected to the first bit line. A second bit line supplies a second bit, with the second bit being an inverse of the first bit. A second storage element has a second phase change resistor for storing a second stored bit, which is connected in series with a second diode. The second storage element is connected to the second bit line. A match line is connected to the first and second storage elements for indicating whether a match occurred between the first bit and the first stored bit, and between the second bit and the second stored bit